

The Germicidal Action of Ultra-violet Radiation and its Correlation with Selective Absorption.—Addendum.

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Our attention has been drawn to the work of Barnard and Morgan,* mention of which was unfortunately omitted from our paper on "The Germicidal Action of Ultra-violet Radiation and its Correlation with Selective Absorption."†

Our work was suggested by the necessity for a strictly scientific analysis of recent statements regarding (1) the differentiation and isolation of allied organisms on the basis of varying susceptibility to the lethal action of this radiation; and (2) the possibility of exercising a therapeutic effect in deep-seated infective lesions by exposing the adjacent body surface to a source of the radiation.

We regret that the above-cited communication was unknown to us at the time, since the authors have investigated the problem of bactericidal action by ultra-violet radiation by a method in general similar to that which we adopted, although their results differ from ours in several respects. Thus, these authors state that, for a number of organisms, the germicidal radiation ranges between wave-lengths 3287 and 2265, but they do not refer to differences in vulnerability among the various organisms. Our own observations showed that the most germicidal region of the ultra-violet spectrum of the tungsten arc lies between wave-lengths 2940 and 2380, and that, with prolonged exposure, the extent to which bactericidal action occurs on either side of these wave-lengths depends upon the particular organism investigated. With regard to selective absorption of the rays, the authors state: "We have been unable to find that any of the radiations contained in the spectrum are penetrative to organic substances such as agar, or dead animal or vegetable tissue. Neither can they penetrate living tissues, but we are continuing experiments in this direction to more exactly determine their action." Although it appears that they had given consideration to this point, the correlation of the germicidal action with the remarkably sharp selective absorption of the lethal radiations exhibited by suspensions of bacteria, solutions of protein, etc., which we have demonstrated, does not seem to have been put to experimental test.

* 'Roy. Soc. Proc.,' vol. 72, p. 126 (1903).

† 'Roy. Soc. Proc.,' B, vol. 90, p. 33.